

AMENDMENTS TO THE CLAIMS

This listing of claims replaces all prior versions of claims in the application.

Listing of Claims:

Claim 1 (Cancelled).

Claim 2 (Previously Presented) A hydraulic drive control device of a construction machine comprising an engine and a hydraulic pump for a work machine that is driven by said engine, said device comprising:

an operation state detector for detecting an operation state of said work machine; and

a controller for receiving a signal from said operation state detector and controlling said engine and said hydraulic pump for said work machine, wherein

said controller

receives the signal from said operation state detector and identifies an operation mode performed with respect to said work machine;

determines an engine output torque control line and a pump torque control line having a desired matching point according to said identified operation mode so that different engine output torque control lines and different pump torque control lines are designated for different operation modes;

controls an output torque of said engine based on said determined engine output torque control line; and

controls an absorption torque of said hydraulic pump for said work machine based on said determined pump torque control line, wherein

said controller determines said engine output torque control line and said pump torque control line so that an engine revolution speed at said matching point of said determined engine output torque control line and said determined pump torque control line assumes a substantially constant predetermined value for any identified operation mode, when said identified operation mode corresponds to any of a plurality of predetermined operation modes.

Claim 3 (Previously Presented) A hydraulic drive control device of a construction machine comprising an engine and a hydraulic pump for a work machine that is driven by said engine, said device comprising:

an operation state detector for detecting an operation state of said work machine; and

a controller for receiving a signal from said operation state detector and controlling said engine and said hydraulic pump for said work machine, wherein

said controller

receives the signal from said operation state detector and identifies an operation mode performed with respect to said work machine;

determines an engine output torque control line and a pump torque control line having a desired matching point according to said identified operation mode so that different engine output torque control lines and different pump torque control lines are designated for different operation modes;

controls an output torque of said engine based on said determined engine output torque control line; and

controls an absorption torque of said hydraulic pump for said work machine based on said determined pump torque control line, wherein

said controller determines said engine output torque control line and said pump torque control line so that a torque at said matching point of said determined engine output torque control line and said determined pump torque control line assumes a substantially constant predetermined value for any identified operation mode, when said identified operation mode corresponds to any of a plurality of predetermined operation modes.

Claim 4 (Cancelled).

Claim 5 (Previously Presented) A hydraulic drive control device of a construction machine comprising an engine and a hydraulic pump for a work machine that is driven by said engine, said device comprising:

an operation state detector for detecting an operation state of said work machine; and

a controller for receiving a signal from said operation state detector and controlling said engine and said hydraulic pump for said work machine, wherein

said controller receives the signal from said operation state detector and identifies an operation mode performed with respect to said work machine;

determines an engine output torque control line and a pump torque control line having a desired matching point according to said identified operation mode so that different engine output torque control lines and different pump torque control lines are designated for different operation modes;

controls an output torque of said engine based on said determined engine output torque control line;

controls an absorption torque of said hydraulic pump for said work machine based on said determined pump torque control line; and

a hydraulic pump for an auxiliary machine, which is driven by said engine and serves to drive said auxiliary machine of said construction machine, wherein

said controller

determines an absorption horsepower of said hydraulic pump for said work machine that is to be absorbed by said hydraulic pump for said work machine, according to said identified operation mode so that different absorption horsepower of said hydraulic pump for said work machine is designated for different operation modes;

detects a predetermined state value relating to an operation of said auxiliary machine and determines an absorption horsepower of said hydraulic pump for said auxiliary machine that is to be absorbed by said hydraulic pump for said auxiliary machine, according to said detected state value; and

controls said engine so that an output horsepower of said engine becomes a sum of said determined absorption horsepower of the pump for the work machine and said determined absorption horsepower of said hydraulic pump for said auxiliary machine.

Claim 6 (Previously Presented) The hydraulic drive control device of a construction machine according to claim 5, wherein

said controller

controls said hydraulic pump for said work machine so that the absorption torque of said hydraulic pump for said work machine follows said determined pump torque control line; and

determines a target revolution speed of said auxiliary machine according to said detected state value and controls a capacity of said hydraulic pump for said auxiliary machine so that said auxiliary machine can be driven at said determined target revolution speed.

Claim 7 (Previously Presented) A method for controlling hydraulic drive of a construction machine comprising an engine and a hydraulic pump for a work machine that is driven by said engine, said method comprising:

a step of identifying an operation mode performed with respect to said work machine;

a step of determining an engine output torque control line and a pump torque control line having a desired matching point according to said identified operation mode so that different engine output torque control lines and different pump torque control lines are designated for different operation modes;

a step of controlling an output torque of said engine based on said determined engine output torque control line;

a step of controlling an absorption torque of said hydraulic pump for said work machine based on said determined pump torque control line,

wherein said engine output torque control line and said pump torque control line are controlled so that an engine revolution speed at said matching point of said determined engine output torque control line and said determined pump torque control line assumes a substantially constant predetermined value for any identified operation mode, when said identified operation mode corresponds to any of a plurality of predetermined operation modes.

Claim 8 (Previously Presented) A method for controlling hydraulic drive of a construction machine comprising an engine and a hydraulic pump for a work machine that is driven by said engine, said method comprising:

a step of identifying an operation mode performed with respect to said work machine;

a step of determining an engine output torque control line and a pump torque control line having a desired matching point according to said identified operation mode so that different engine output torque control lines and different pump torque control lines are designated for different operation modes;

a step of controlling an output torque of said engine based on said determined engine output torque control line;

a step of controlling an absorption torque of said hydraulic pump for said work machine based on said determined pump torque control line,

wherein said engine output torque control line and said pump torque control line are determined so that a torque at said matching point of said determined engine output torque control line and said determined pump torque control line assumes a substantially constant predetermined value for any identified operation mode, when said identified operation mode corresponds to any of a plurality of predetermined operation modes.

Claim 9 (Previously Presented) A method for controlling hydraulic drive of a construction machine comprising an engine and a first hydraulic pump for a work machine that is driven by said engine, and a second hydraulic pump for an auxiliary machine, which is driven by said engine and serves to drive said auxiliary machine of said construction machine said method comprising:

a step of identifying an operation mode performed with respect to said work machine;

a step of determining an engine output torque control line and a pump torque control line having a desired matching point according to said identified operation mode so that different engine output torque control lines and different pump torque control lines are designated for different operation modes;

a step of controlling an output torque of said engine based on said determined engine output torque control line;

a step of controlling an absorption torque of said hydraulic pump for said work machine based on said determined pump torque control line,

wherein an absorption horsepower of said hydraulic pump for said work machine that is to be absorbed by said hydraulic pump for said work machine is determined, according to said identified operation mode so that different absorption horsepower of said hydraulic pump for said work machine is designated for different operation modes,

wherein a predetermined state value relating to an operation of said auxiliary machine is detected and an absorption horsepower of said hydraulic pump for said auxiliary machine that is to be absorbed by said hydraulic pump for said auxiliary machine is determined, according to said detected state value, and

wherein said engine is controlled so that an output horsepower of said engine becomes a sum of said determined absorption horsepower of the pump for the work machine and said determined absorption horsepower of said hydraulic pump for said auxiliary machine.

Claim 10 (Currently Amended) A method for controlling hydraulic drive of a construction machine comprising an engine and ~~a hydraulic pump for a work machine that is driven by said engine~~ a first hydraulic pump for a work machine that is driven by said engine, and a second hydraulic pump for an auxiliary machine, which is driven by said engine and serves to drive said auxiliary machine of said construction machine, said method comprising:

a step of identifying an operation mode performed with respect to said work machine;

a step of determining an engine output torque control line and a pump torque control line having a desired matching point according to said identified operation mode so that different engine output torque control lines and different pump torque control lines are designated for different operation modes;

a step of controlling an output torque of said engine based on said determined engine output torque control line;

a step of controlling an absorption torque of said hydraulic pump for said work machine based on said determined pump torque control line,

wherein said hydraulic pump for said work machine is controlled so that the absorption torque of said hydraulic pump for said work machine follows said determined pump torque control line; and

wherein a target revolution speed of said auxiliary machine is determined according to said detected state value and a capacity of said hydraulic pump for said auxiliary machine is controlled so that said auxiliary machine can be driven at said determined target revolution speed.